

As it is called "e e e F" perhaps a larger telescope may well look for it.

Swift 197 and 198. The announced positions put these at the same declination, and make them differ only 15 seconds in right ascension. They were discovered on the same night. 197 is called "v F, R," and 198 "ee F, eE." I examined the locality on three nights, and could find only one nebula which is 1' in length, and elongated at 160° ; on one night it was suspected of being binuclear. Swift says of 197 "2 F st near nf point to it," and of 198 "near p * of sev. curved." Both these statements are true of the nebula which I observed. On two of the three nights I also measured Swift 199, which is in the same field of view, was discovered on the same night, and is described by Swift as fainter than 197 and 198. Swift has sent me a copy of his original records, which says of 198 "sp of 2," and of 199 "nf of 2." For 197 there is no such remark. I conclude that there is no nebula corresponding to the position and description of Swift 197. The position of Swift 198 is $20^h 37^m 8^s, -30^\circ 12' 7''$.

Swift 199. The position is $20^h 37^m 28^s, -30^\circ 3' 8''$.

Swift 241. I saw nothing in the place given by Swift, but measured one 34 seconds following at nearly the same declination. It precedes a star of mag. 8, 17' seconds, $2' 3''$ south. This star has a companion of mag. 12 at $70^\circ, 6''$. The position of the nebula is $23^h 46^m 26^s, -28^\circ 55' 2''$.

Note on the Total Eclipse of the Sun, 1900 May 28, observed at Algiers. By the Rev. C. D. P. Davies, M.A.

With regard to the time of first contact chronicled on p. 589 of vol. lx., and the supposition of Mr. Crommelin that the time noted was probably five seconds late, it will be absolutely safe to read "certainly" for "probably," unless Mr. Crommelin saw the contact before he proclaimed it, as I distinctly saw it in my guiding refractor of 2-inch aperture fully five seconds before Mr. Crommelin announced it.

Note on the Moon's Eclipse Diameter. By A. C. D. Crommelin.

The results of the total solar eclipses of 1898 and 1900 have established beyond a doubt that the value of the Moon's semi-diameter now used in the *Nautical Almanac* for eclipses and occultations gives too long a duration for totality. This value ($15' 32''\cdot65$) was deduced by Dr. L. Struve from a discussion of the occultations observed during the total lunar eclipses of 1884 and 1888.

The American ephemeris uses the value $15' 31''\cdot76$ for eclipses and occultations, and increases this by $2''\cdot5$ for meridian observations of the bright limb.

Now the American ephemeris durations of totality were very nearly correct in the above eclipses, from which it seems clear that their value of the semi-diameter is preferable to the *Nautical Almanac* one for this purpose.

Now it occurred to me recently that the reason that a value deduced from a large number of occultations does not give correct results for total eclipses is to be sought in the great irregularity of the Moon's limb. I was particularly struck with this in watching the disappearing Sun last May. Twenty seconds before totality the lunar mountains began to break the continuity of the solar crescent, and a few seconds before totality there was no semblance of a continuous crescent, only a row of bright beads and patches. I have drawn a figure representing diagrammatically on a greatly exaggerated scale these irregularities in the Moon's outline. The outer circle is drawn to embrace the highest mountains, the inner through the deepest valleys, while the middle one is drawn midway between the two. Now it seems clear that the discussion of a large number of occultations at various points of the limb would give us the diameter of this middle circle. But since we do not call the Sun totally eclipsed if any portion of it is visible through a lunar valley, the inner circle represents the effective diameter of the Moon as regards her power of totally eclipsing the Sun. The difference between the *Nautical Almanac* and American Ephemeris values only implies an extreme depth of the deepest lunar valleys below the mean level of about 5,000 feet, which is not at all an improbable amount. The course then that I should recommend is as follows: Struve's semi-diameter of the Moon should certainly be used for occultations, and it may be used for the prediction of first and fourth contacts of total eclipses; also for partial and annular eclipses, whose accurate prediction is of minor importance. But it is so important to predict the duration and boundaries of totality with all possible accuracy that I think it would be well to use the American value, or even a slightly smaller one (say $15' 31''\cdot70$) for this purpose. I think this